

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of

Amendment of Part 2 of the Commission's  
Rules to Allocate Spectrum Below 3 GHz for  
Mobile and Fixed Services to Support the  
Introduction of New Advanced Wireless  
Services, Including Third Generation Wireless  
Systems

ET Docket No. 00-258

Amendment of Section 2.106 of the  
Commission's Rules to Allocate Spectrum at 2  
GHz for Use By The Mobile-Satellite Service

ET Docket No. 95-18

The Establishment of Policies and Service Rules  
for The Mobile-Satellite Service in the 2 GHz  
Band

IB Docket No. 99-81

Petition for Rule Making of the Wireless  
Information Networks Forum Concerning the  
Unlicensed Personal Communications Service

RM-9498

Petition for Rule Making of UTStarcom, Inc.  
Concerning the Unlicensed Personal  
Communications Service

RM-10024

**COMMENTS OF AVAYA**

Avaya Inc. ("Avaya"), formerly the Enterprise Network Group of Lucent Technologies, respectfully submits its comments in response to the Federal Communications Commission's Further Notice of Proposed Rule Making ("FNPRM") in the above-captioned dockets. The Commission's FNPRM seeks comment on the reallocation of certain frequencies to facilitate the deployment of advanced wireless services, including reallocation of the unlicensed PCS ("UPCS") bands at 1910-1920 MHz and 1920-1930 MHz. As discussed herein, Avaya is strenuously opposed to any reallocation of the UPCS band as both contrary and detrimental to the public interest.

## **I. INTRODUCTION AND SUMMARY.**

As a leading provider of communications systems and software, including UPCS devices, Avaya's interests are directly affected by the proposed reallocation of the UPCS band. Avaya's UPCS devices permit end users to communicate with each other *via* Definity Wireless Business Systems (a wireless PBX system), and provide mission critical, and sometimes life-supporting, services. As such, Avaya is dismayed that the Commission would consider reallocating the UPCS band—and the isochronous 1920-1930 MHz band in particular—for services other than UPCS. This proposed action directly contravenes years of prior decisions encouraging manufacturers and end users to invest in the band.

If the Commission were to inadvisably pursue reallocation of the UPCS, the impact would be devastating. Avaya, in conjunction with other UPCS industry members, has invested hundreds of millions of dollars in products that comply with the rigorous Part 15 etiquette. Customers, for their part, have made considerable investments in acquiring and installing UPCS systems and are unlikely to be able to afford either the installation cost of replacement systems or the service disruptions that reallocation of the UPCS frequencies would necessitate. Moreover, the potential trade-off for this severe injury to the public welfare would be the reallocation of a band that, as discussed herein, is technically incompatible for services other than UPCS. In sum, the Commission cannot reallocate the UPCS frequencies without dealing a significant, and potentially fatal, blow to the UPCS industry and without disrupting service to hundreds of thousands of users. Accordingly, Avaya urges the FCC to expeditiously terminate this proceeding at least with respect to reallocation of UPCS frequencies.

## **II. REALLOCATION OF THE UPCS BAND WILL UPSET SIGNIFICANT, REASONABLE AND GOOD-FAITH EXPECTATIONS**

Avaya, and other UPCS manufacturers and vendors, have placed considerable reliance upon the Commission's decision to allocate spectrum for UPCS use. In turn, end users have relied upon the UPCS products and services that Avaya and others have placed on the market. As discussed below, the development of Part 15-compliant UPCS products, and the establishment of a customer base for these products, has come at a very high price. UPCS manufacturers have overcome myriad regulatory hurdles, and customers have made significant pricing and usage accommodations, in order to develop the UPCS band and foster a viable market in UPCS products. Thus, the FCC's simplistic conclusion that there has been "only limited wireless PBX use" in the 1920-1930 MHz band misstates facts critically relevant to any reallocation decision.<sup>1</sup>

### **A. Notwithstanding the Enormous Hardships Caused by the Many Technical and Usage Restrictions Imposed Upon UPCS Devices, Use of the Isochronous (1920-1930 MHz) Band Is Flourishing.**

In its 1994 *Memorandum Opinion and Order* allocating spectrum for unlicensed use, the Commission recognized the importance of UPCS, stating that its UPCS allocation "will have an overall positive effect for consumers in terms of the diversity and utility of unlicensed devices available on the market, as well as the rapid deployment of competitive licensed PCS Services."<sup>2</sup> In reliance upon the Commission's decision to allocate spectrum for UPCS, Avaya and other manufacturers have gone forward to develop, market and deploy UPCS products, and have been

---

<sup>1</sup> FNPRM at ¶10.

<sup>2</sup> Amendment of the Commission's Rules to Establish New Personal Communications Services, *Memorandum Opinion and Order*, 75 RR 2d 491, 9 FCC Rcd 4957, ¶ 84 (1994) ("1994 Order").

tremendously successful in utilizing the isochronous band. This success, however, has come at great financial cost and with much effort, due to the unique environment at 1910-1930 MHz.

UPCS manufacturers must comply with an onerous, complex and singularly comprehensive set of regulations to deploy systems in the UPCS band:

- As an initial matter, the spectrum etiquette itself, while conferring significant benefits, mandates rigid adherence to technical requirements that are unique and from a development perspective, expensive. Because incumbent microwave licensees operate in the UPCS band, the Commission has imposed a number of requirements to guard against interference. Part 15 requires any unlicensed PCS device or system to be coordinated through UTAM, the Commission's designated frequency coordinator for the UPCS band, prior to deployment or relocation.
- All UPCS equipment also must undergo the Commission's equipment authorization process, including requirements to provide the Commission with an explanation of all measures that will (1) ensure that the device cannot be activated until installation at the authorized location is verified by UTAM and (2) enable the device to be automatically disabled if it is relocated outside its intended geographic area.
- Because Avaya and other UPCS manufacturers are expected to share the costs of relocating incumbent microwave licensees from the UPCS band, manufacturers are assessed a fee in the amount of \$20 for each UPCS device. The proceeds of this fee are used to cover relocation expenses. UPCS manufacturers, working in tandem with UTAM, already have expended \$60 million in relocation costs for migrating incumbent microwave licensees.
- Furthermore, once UPCS equipment is approved, a licensed technician must install and relocate the equipment, imposing additional cost inapplicable in other bands.<sup>3</sup>
- Avaya (and other manufacturers) must continually update the UTAM coordination database any time a base station is added, to ensure the accuracy of information on deployed UPCS systems.
- Avaya (and other manufacturers) must submit to recurring auditing requirements to ensure the accuracy of UTAM fees, and must bear the financial burden of such audits.

Developing products that comply with the Part 15 etiquette and the unique requirements of the UPCS band has been no simple technical feat. Moreover, selling these products to end users—laden as they are with numerous caveats and restrictions—has required much effort and

---

<sup>3</sup> See 47 C.F.R §§ 15.303 - 15.311; *see also* 1994 Order at ¶ 222.

persistence to achieve market penetration. As the Commission must recognize, while these restrictions may serve the useful purpose of safeguarding operations against interference, they also increase the cost of deploying and marketing UPCS products.

Notwithstanding the many challenges to deployment of UPCS devices, many manufacturers have invested huge sums to develop the necessary technologies, features, and procedures unique to this band. Indeed, the 1920-1930 MHz band is far from underutilized. On the contrary, as explained by other commenters,<sup>4</sup> the isochronous band is close to saturation in certain high-density, geographic-specific areas.<sup>5</sup> Avaya's own hard-earned success serves as a concrete example of the effort that has been made to develop and deploy UPCS systems and to diversify the wireless service offerings available to the public. Avaya has succeeded in rolling out UPCS systems to many users and in developing low-power UPCS devices capable of operating in close proximity to one another without creating interference issues. Current Avaya customers represent a wide variety of groups and industries, including hospitals, state and local governments, universities, convention centers, stock and commodity trading exchanges, nuclear power plants, and convention centers. UPCS devices are used for everything from facilitating communications between hospital staff to facilitating trading on exchange floors. For example, Avaya's systems are used in numerous hospitals to permit doctors, nurses and other staff to communicate quickly and dependably in emergency situations, as well as to conveniently handle routine matters, such as the delivery of proper medications to patients. Furthermore, Avaya's systems operate in a manner that minimizes interference concerns with the hospital's medical

---

<sup>4</sup> See Comments of UTAM, submitted concurrently in this proceeding.

<sup>5</sup> For this reason, Avaya notes that it joins other commenters in support of WINForum's petition to permit the deployment of isochronous devices in the asynchronous band. See Amendment of the Commission's Rules for Unlicensed Personal Communications Services, Petition For Rulemaking of the Wireless Information Networks

and other equipment—a critical factor in a hospital setting, where efficacy of life-saving medical equipment cannot be compromised.

In sum, Avaya and other UPCS industry members have invested considerable resources in developing and marketing technically compliant UPCS products to consumers, and have achieved considerable success. Indeed, at the urging of the FCC, UPCS manufacturers have considerably expanded the menu of telecommunications capabilities available to the public. And, these investments have been made based on the implicit promise and inducement by the FCC that the industry would be permitted to mature and recoup initial development costs. Should the FCC decide to reallocate the isochronous band at this juncture, after so much financial and human capital has been invested in UPCS technology, the FCC will be dealing the industry an unexpected and potentially fatal blow. In the event that the Commission reallocates any portion of the UPCS band for other use, the Commission must take the investments of the UPCS industry into consideration and fully reimburse industry members such as Avaya, who have spent considerable amounts of money in clearing the band.

**B. Consumers Rely Upon UPCS Devices for Critical Services and Can Neither Afford Nor Be Expected To Replace their Current Wireless Systems.**

The hundreds of thousands of end users who presently use and rely upon UPCS products have invested millions of dollars in acquiring and installing these systems. In many cases, these end users may be unable to install substitute systems without incurring prohibitive costs or experiencing intolerable—and in some cases, potentially life-threatening—service delays. Furthermore, customers rely upon their UPCS systems to provide a mobility solution to their

---

Forum, RM-9498 (Jan. 8, 1999). Such flexibility will accommodate increasing demands for isochronous devices while permitting efficient use of available spectrum.

business needs. Customers cannot physically or reasonably be expected to remove their present systems and install substitute systems that operate on alternative frequencies.

As a practical matter, asking consumers to replace their UPCS systems is tantamount to asking consumers to accomplish the infeasible task of replacing their communications systems while simultaneously conducting normal business operations. For example, nurses who presently use wireless handsets to communicate with other hospital staff would be forced to give up their current handsets. These nurses, accustomed to being able to move freely about the hospital, would be forced to utilize an alternative method for communications, such as a landline phone. Such a requirement would hamper their mobility and attendant ability to respond quickly to patient needs. Additionally, many companies provide their employees with wireless handsets that are connected to their PBX system; removing these handsets would be akin to removing an employee's phone. The Commission cannot reasonably expect organizations and companies to suspend operations while they remove and reinstall phone systems; such a requirement would be unduly onerous and severely detrimental to conducting daily business.

Furthermore, the 1920-1930 MHz band specifically provides many benefits to end users, including the convenience of being able to communicate without incurring airtime charges and the comfort of heightened interference protection. The 1920-1930 MHz band is preferred in providing services to consumers, including a mobility solution, in large part because of the many technical and other safeguards that are imposed pursuant to the Part 15 etiquette. Because UPCS devices operating in this band are subject to a multitude of strict requirements, as outlined above, consumers have some assurance that their communications will not experience interference.

As an additional matter, Avaya notes that the Commission cannot "grandfather" existing UPCS users and permit coexisting operations in the 1920-1930 MHz band without undermining

the benefits afforded by this band. In order to accommodate co-users, UPCS consumers necessarily would be forced to operate their devices pursuant to additional restrictions, such as using their UPCS devices during certain times where interference would not pose undue concerns. Because UPCS systems are used for communications where time is of the essence and reliability is essential, forcing users to operate pursuant to such restrictions would nullify the benefits of UPCS devices.

If, against Avaya's and other industry members' express judgment, the Commission chooses to move forward and reallocate the isochronous band for uses other than UPCS, the Commission should compensate fully the many end users who are dependent upon their UPCS systems and who have invested heavily in the band. These end users generally are smaller, site-specific entities that cannot afford to purchase additional or substitute systems. The Commission cannot take spectrum away from its present allocation, absent compensating or otherwise providing for the needs of end users, without effectuating a complete breach of the public's trust and expectations.

### **III. REALLOCATING THE UPCS BAND FOR ADVANCED SERVICES OR RELOCATION USE MAY IRREPARABLY INJURE THE UPCS INDUSTRY.**

As explained above, a decision to reallocate the UPCS band—and the isochronous band specifically—will undermine the considerable faith that the public has placed in the Commission's spectrum allocation decisions. Members of the UPCS industry, as well as consumers, have invested millions of dollars in the development of the UPCS band, and have acted in good-faith reliance upon the Commission's decision to allocate spectrum at 1920-1930 for isochronous devices. Not only will reallocation of these frequencies decimate the public's ability to rely upon future Commission decisions, and to make business investments and



decisions based upon Commission actions, but reallocation of the 1920-1930 MHz band has the potential to precipitate the downturn and ultimate collapse of the UPCS industry in general.

Manufacturers and distributors of UPCS devices have invested considerable amounts of money and effort in developing a UPCS product market. The industry has not yet had sufficient opportunity to recover the gains of these investments, and the Commission should recognize the inequity of reallocating spectrum at this time. Furthermore, the Commission should consider the impact that any reallocation of frequencies will have upon the industry's relationships with its customers. These customers have invested considerable sums in UPCS technology and fully expect, based upon the representations of the UPCS industry (as well as the FCC), that they will be able to receive the full benefits of their UPCS technology in return for this investment. Avaya has worked assiduously to cultivate customer relationships and to develop a market base in UPCS devices; reallocation of the 1920-1930 MHz frequencies will go a long way towards destroying these customer relationships, as Avaya's credibility will be severely undermined.

Indeed, the issuance of the FNPRM itself has already damaged the UPCS market by creating customer confusion with respect to the continued availability of the 1920-1930 MHz band for their UPCS devices. If customers are unsure that UPCS devices will be able to operate on these frequencies, they are unlikely to purchase UPCS equipment. Avaya is aware of at least one competitor who has seized upon the FNPRM to spur market confusion, suggesting to would-be UPCS customers that investments in UPCS products may be ill advised in light of the FNPRM. Accordingly, the Commission should act swiftly to remove any uncertainty and to confirm that the 1920-1930 MHz band will retain its present allocation.<sup>6</sup>

---

<sup>6</sup> Avaya supports the Comments of UTAM, which request that the Commission remove consideration of reallocation of the UPCS band, and the isochronous band particularly, from the general docket. Instead, the Commission should instigate a separate and expedited rule making proceeding to address issues pertaining to reallocation of these frequencies.

#### **IV. THE UPCS BAND IS TECHNICALLY UNSUITABLE FOR USES OTHER THAN UPCS, DUE TO ITS CRITICAL FUNCTION AS A GUARD BAND.**

Avaya further submits that, due to interference concerns, the 1910-1930 MHz band is of little technical utility in furthering the Commission's 3G goals. The UPCS band cannot be incorporated into any global consensus 3G spectrum plan because it occupies a unique niche between the licensed PCS base and mobile transmit bands. Even if it were desirable to consider pairing the spectrum to create opportunities for licensed mobile use, additional spectrum would be required elsewhere to maintain the 80 MHz transmit/receive separation for licensed PCS in the United States. Even if such spectrum were found, the end result would be that the lower power mobile transmit band, currently from 1850-1910 MHz, would be expanded to be immediately adjacent to the higher power base transmit band, currently from 1930-1990 MHz, or vice-versa. Avaya submits that the UPCS band, as allocated to low power devices that receive no interference protection, serves a necessary and critical function as a guard band to protect the integrity of licensed PCS services.

Moreover, the 1910-1930 MHz band is also inappropriate for use as transitional spectrum to accommodate incumbents displaced from other spectrum homes by licensed 3G operators. Although a detailed interference analysis cannot be conducted in the absence of a specific proposal, past experience demonstrates clearly that the band could not accommodate, for example, microwave systems. During the roll-out of licensed PCS, operators were forced in many instances to relocate adjacent channel point-to-point microwave hops to avoid interference with their PCS operations. Restoring microwave operators in the UPCS band would reverse years of difficult negotiations and the expenditure of millions of dollars by PCS licensees seeking to ensure interference free operations.

## **V. CONCLUSION**

For the aforementioned reasons, Avaya is opposed to any proposed reallocation of the UPCS band generally, and of the 1920-1930 MHz band specifically. As explained in detail above, reallocation of these frequencies would (1) upset the present expectations and good-faith reliance of UPCS industry members and end users; (2) impose a tremendous financial and impractical burden upon end users by requiring, in essence, that they replace their communications systems; (3) deprive UPCS manufacturers and end users the benefit of recouping their considerable investments in UPCS technology; and (4) undermine the economic health of the UPCS industry generally. In return for inflicting these injuries upon the UPCS industry, the Commission would be reclaiming spectrum that is technically unsuitable for use as relocation spectrum. Accordingly, Avaya urges the Commission to retain the present allocation of the 1910-1920 MHz and 1920-1930 MHz bands for UPCS use.

Respectfully Submitted,

/s/ Charles E. Crowders

Charles E. Crowders  
Vice President Government Affairs  
Avaya Inc.  
1450 G Street, N.W.  
Washington, D.C. 20005  
202-220-7300

October 19, 2001